

Degenerative Cervical Myelopathy

A guide for patients and families

This guide gives you important information about:

- what Degenerative Cervical Myelopathy (DCM) is
- what treatments are available
- where to find more information
- how to contact us

We encourage you to learn as much as you can about DCM. This will help you to make informed decisions and take part in your care.



This booklet is for information only.
It does not replace the advice of your surgeon and health care team.



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Words to know

Medical term	What it means
DCM	Degenerative Cervical Myelopathy. A medical condition that can happen when the spinal column begins to break down.
Cervical spondylosis	Arthritis of the spine. The wearing down of bones in the neck. These changes may not show any symptoms.
Decompression surgery	An operation to ease pressure on the spinal cord and nerves.
Tetraparesis	Weak muscles in the arms and legs.
Central cord syndrome	Damage to the cervical spine (neck). Symptoms include weakness in arms more than legs, and difficulty urinating.

What is degenerative cervical myelopathy (DCM)?

Degenerative cervical myelopathy (DCM) is a medical condition that can happen when the spinal column begins to break down.

- **Degenerative** refers to breakdown.
- **Cervical** refers to the neck.
- **Myelopathy** refers to pressure on the nerves.

DCM causes the spinal cord and blood vessels around the cord to become compressed. About 5 to 10% of patients with cervical spondylosis (arthritis of the spine) will develop DCM.

Over time, these changes cause damage to the nerves that may lead to **tetraparesis**. Each person can experience these symptoms differently.

Age and gender play an important part in the development of DCM. The usual age of someone with DCM is 64 years. This condition affects men more than it affects women. Family history, environment, and your type of workplace can also affect the development of DCM.

DCM is also an important risk factor for a condition called **central cord syndrome**, a type of spinal cord injury commonly caused by having DCM.

What are the common symptoms?

You may have one or more of these symptoms. Some symptoms may be worse than others.

- Weakness in the arms and/or legs
- No feeling (sensation) in the arms and/or hands
- Not being able to handle or use small objects (pens, clips, buttons, zippers)
- Trouble with walking or keeping your balance
- Problems emptying your bladder or passing bowel movements (you may find that you are holding in urine or stool)
- Neck pain

Important

- Pay attention to any activities that may worsen your symptoms. If possible, try to stop those activities.
- It is **not** recommended that you have any manipulation of the spine involving spinal traction. These methods may not be effective or safe for you.

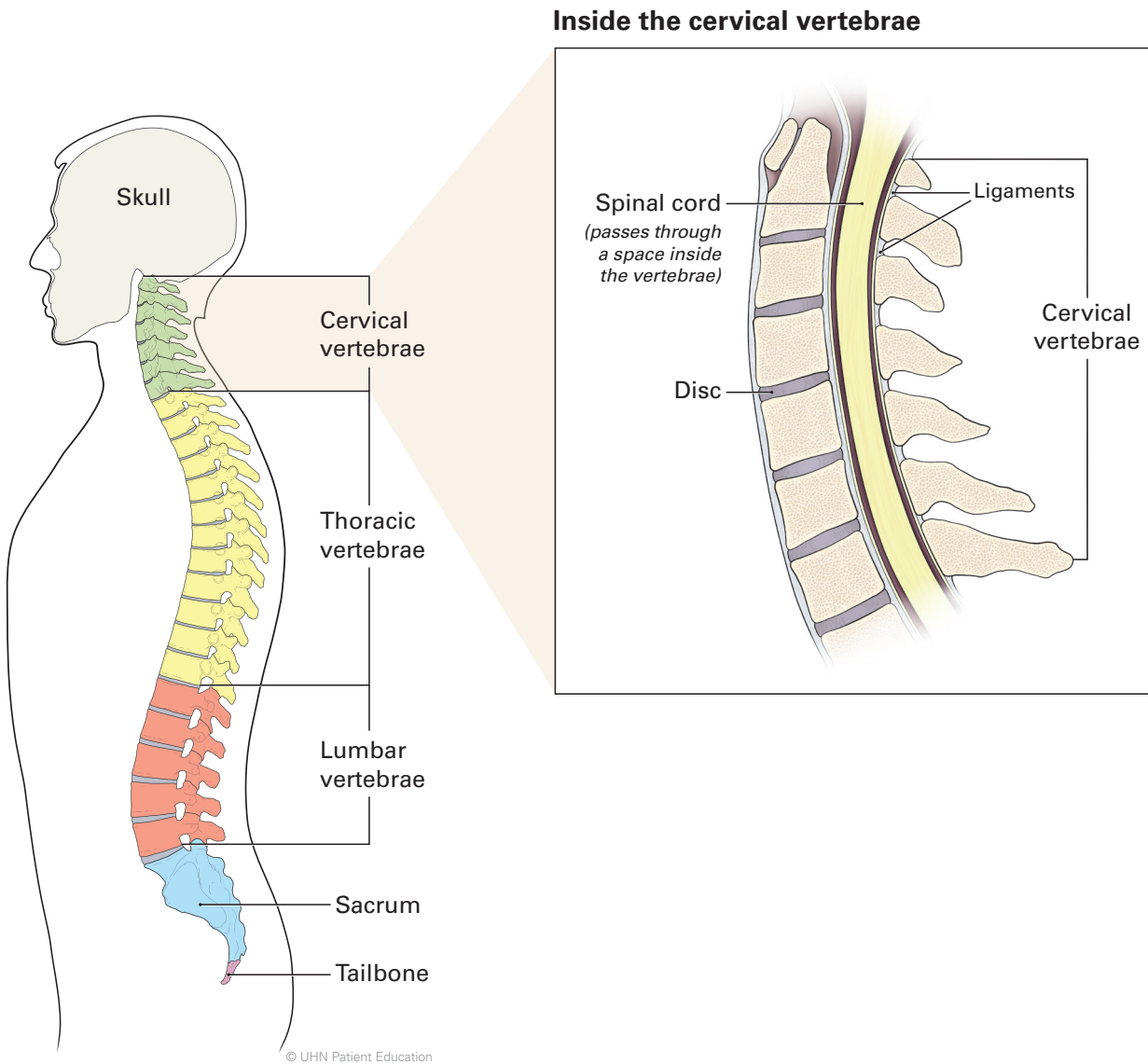
How will DCM affect my life?

You may have neck pain and weakness in your arms, hands and legs. Your arms, hands and legs may also feel numb.

A small number of patients do not have these symptoms right away. They may develop symptoms after a neck injury instead.

We do not know the exact cause for many of these symptoms. But, we can still try to prevent more damage to the spine by acting early.

Parts of the spine



The spine has 33 vertebrae and is divided into 5 areas: **cervical, thoracic, lumbar, sacrum** and **coccyx**.

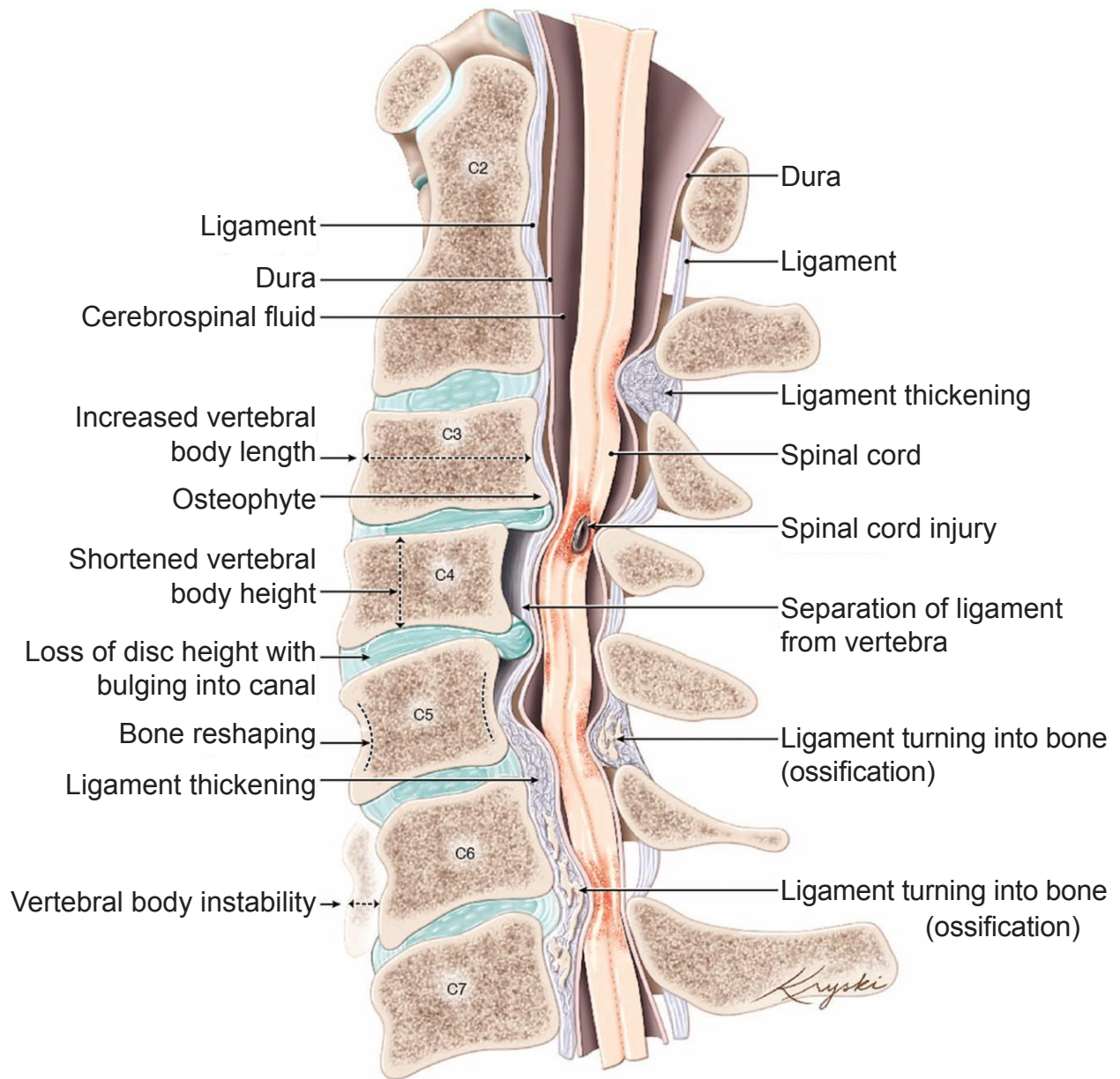
The vertebrae are connected to each other by joints and discs.

The cervical spine is located in the neck and helps the skull to control head movements.

The discs act like shock absorbers so your vertebrae will not bump into each other when you move around.

The spinal cord is protected by vertebrae and is surrounded by layers of tissue.

What DCM does to the spinal cord



Conceptual design by Aria Nouri, edits by Michael G. Fehlings, and medical illustration by Diana Kryski (Kryski Biomedica). Modifications to labels were made. Originally published in Nouri, A. et al. (2015) Degenerative Cervical Myelopathy. *SPINE*, 40 (12), E678.



MRI showing DCM, as seen by the multi-level spinal cord compression and degenerative changes.



MRI showing DCM, as seen by the disk degeneration with cord compression and cervical stenosis.

Your family history, environment, and where you work affects how DCM can develop. As you get older, the discs and joints in your spinal cord begin to break down. Changes to the spine are normal as we age, but can be made worse by repeated injuries to the cervical spine.

These changes lead to the spinal cord being pressed or squeezed over time. In some people, this creates pressure on the spinal cord which causes nerve damage.

Symptoms depend on how badly the spinal cord has been damaged.

How do you know when someone has DCM?

We cannot be sure that you have DCM until you have an MRI or CT scan. During magnetic resonance imaging (MRI) and computer tomography (CT) machines take detailed pictures of the organs and tissues inside of your body. These pictures help your doctor and the spine specialist find out if there is a lot of damage to your spinal canal.

Patients are referred to a spine specialist by their family doctor once the doctor notices that you have symptoms of DCM (see page 3). Based on your MRI and CT results and your symptoms, the spine specialist will order more tests. Finding out early that you have DCM plays an important part in your treatment.

What is going to happen to me?

Most patients experience:

- Weakening of muscles in the arms, hands and/or legs
- Pain
- Not being able to feel the arms and/or legs

A small number of patients with DCM do not have the symptoms above right away. They may start having these symptoms only after a neck injury.

We still do not know exactly why these symptoms happen. But, we can still try to stop neck injuries before they happen.

Treatments

If your symptoms do not bother your everyday life, your doctor may decide to closely watch your condition instead of surgery.

If your symptoms are badly affecting you, surgery might be the best way to stop the condition from getting worse.

Here are some treatments that do not involve surgery:

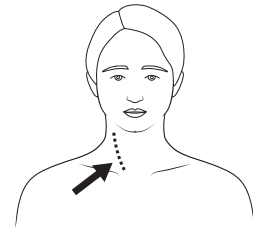
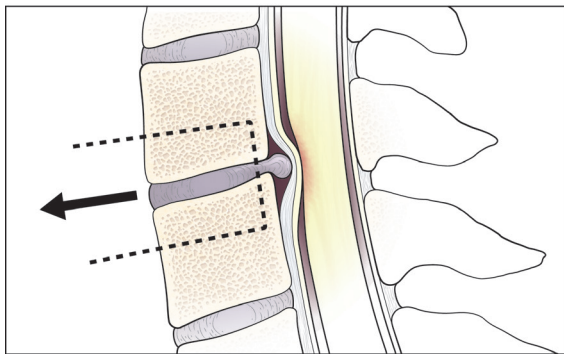
- Exercises to strengthen the neck and upper shoulder muscles (exercises also help to reduce neck pain)
- Stopping high-risk activities such as heavy lifting and action sports
- Pain medicine including non-steroidal medicine and muscle relaxants. Narcotics may be prescribed in special cases.
- Managing nerve pain with medicine
- Closely watching symptoms

Surgery

Surgery is used to treat DCM in patients with spinal cord damage. Pictures from an MRI test can show us where the damage is. Surgery can be done on the front or the back of the spinal cord.

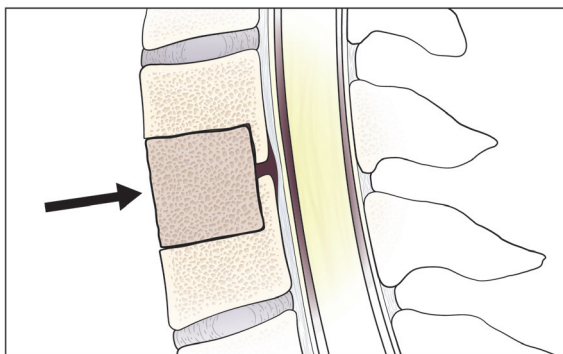
Anterior Cervical Decompression and Fusion (ACDF): The disc or vertebrae is partially removed and replaced with bone or synthetic material. The surgeon will keep the area steady using titanium plates and screws.

1. Part of the vertebrae and disc are removed

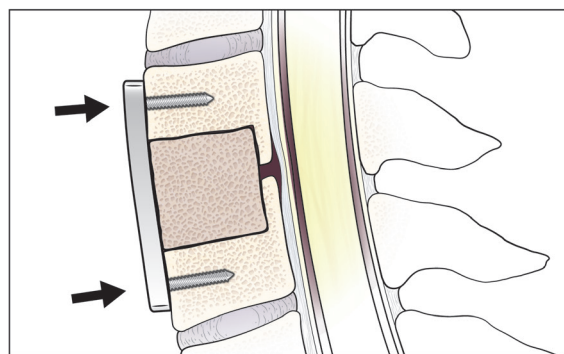


Incision (cut for surgery)

2. A piece of bone is put into the space

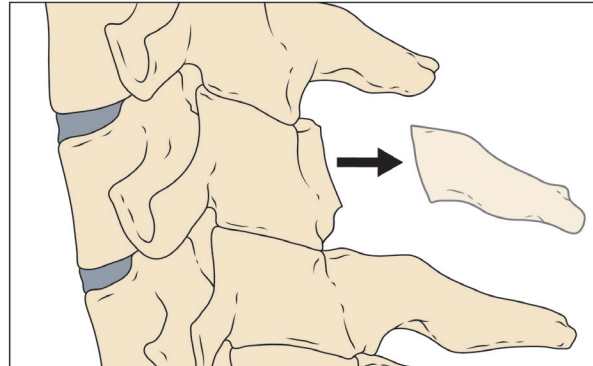
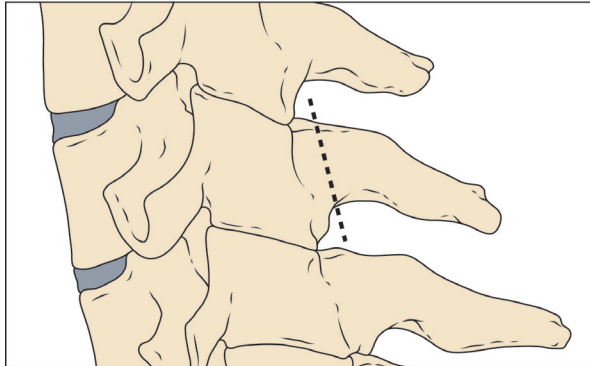


3. A plate is attached to support the vertebrae



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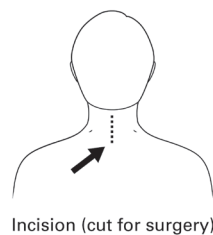
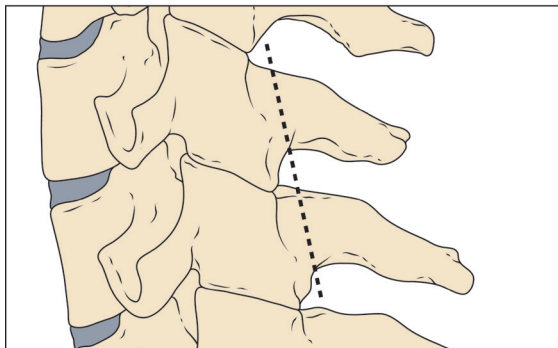
Laminectomy: The lamina (the bone covering the back of the spinal cord) is cut and partially removed to ease pressure and increase the amount of space available for your spinal cord.



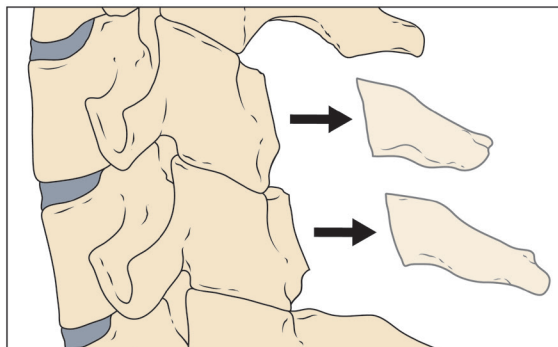
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Posterior Cervical Decompression and Fusion (PCDF): The areas of your spinal cord causing pressure or pain are removed. The surgical site is held together using rods and screws. Muscles and tissues as well as your skin are closed up with stitches that dissolve. Your doctor will remove any steri-strips or surgical staples used within a few days.

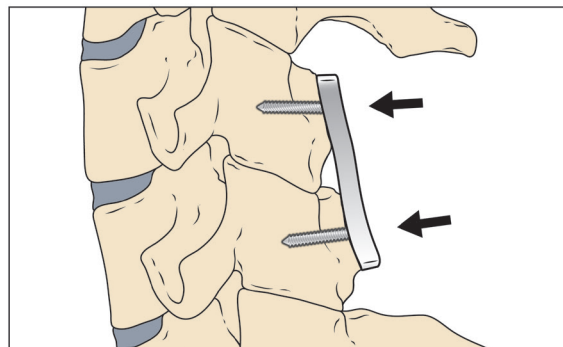
1. Part of the vertebrae are cut



2. The cut pieces are removed



3. A plate is attached to support the vertebrae



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Is surgery right for me?

The goals of surgery include stopping symptoms from getting worse and preserving your ability to move your arms and legs. For every 10 people who have surgery, 8 people will see improvements.

Things that affect your improvement after surgery:

- How long you were having symptoms before the surgery
- The size of your spinal canal before surgery
- How much of your spinal cord has been pressed

You and your surgeon will work together to choose the best option for you.



If you have DCM and you are not having surgery, watch for these signs that your DCM is getting worse:

- Sudden changes with passing urine or stool
- Sudden numbness and/or tingling of your arms, hands and feet
- Changes in your walking or with your balance that were not there before
- Weakness in your arms and legs that you did not have before



If any of these things happen to you:

- Call your doctor
- Call 911
- Go to the Emergency Department

Where to find more information

At UHN

- **Spinal Cord Clinic at Toronto Western Hospital** to learn more about the clinic and who to contact for information.
www.uhn.ca/KNC/Clinics/Spinal_Cord
- **Patient and Family Library** website at www.uhnpatienteducation.ca

Information from other organizations

- **Spine Universe** for information about spine health, common treatments and much more. Written by medical experts. See www.spineuniverse.com

Who we are

The Krembil Brain Institute at Toronto Western Hospital (UHN) is home to one of the world's largest and most comprehensive teams of physicians and scientists uniquely working hand-in-hand to prevent and confront problems of the brain and spine.

Our mission is to provide leading comprehensive medical care and treatment to our patients, and to accelerate the discovery of novel treatment strategies for disorders of the spine and for spinal cord injury through innovative clinical and basic science research. University Health Network is a research hospital fully affiliated with the University of Toronto.

Contact our office

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Form: D-8631 | Author: Spine Team, Krembil Neuroscience Centre | Revised:01/2020